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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

BEFORE THE

# Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of

Service Rules for the 746-764 and  
776-794 MHz Bands, and  
Revisions to Part 27 of the  
Commission's Rules

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WT Docket No. 99-168

To: The Commission

## REPLY OF TRW INC. TO OPPOSITIONS AND/OR COMMENTS

TRW Inc. ("TRW"), by its attorneys and pursuant to Section 1.429 of the Federal Communications Commission's Rules, 47 C.F.R. § 1.429, hereby replies to the comments and/or oppositions to petitions for reconsideration filed by several parties in response to the recent adoption of service rules for licensing commercial use of the 746-764 MHz and 776-794 MHz bands in the *First Report and Order*<sup>1</sup> in the above-captioned proceeding ("700 MHz Band Rules Proceeding").

In its Consolidated Comments and Opposition,<sup>2</sup> TRW noted the widespread support of petitioners in the 700 MHz Band Rules Proceeding for its assertion that the

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<sup>1</sup> *Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, First Report and Order*, WT Docket No. 99-168 (released Jan. 7, 2000) ("*First R&O*").

<sup>2</sup> Consolidated Comments and Opposition of TRW Inc. to Petitions for Reconsideration and/or Clarification (filed Mar. 10, 2000) ("TRW Comments & Opposition").

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*First R&O* adversely impacts broadband deployment, as well as for its proposal of service-specific power limits.<sup>3</sup> It also requested clarification of technical rules 27.53(c) and (d) adopted in the *First R&O* with regard to whether the rules' language applies to resolution bandwidth only or also to the bandwidth to which the measurement is to be adjusted.<sup>4</sup> Further, TRW opposed a call by the Association of Public-Safety Communications Officials-International, Inc. ("APCO") for stricter out-of-band emission ("OOBE") limits to protect adjacent public safety systems in the bands 764-776 and 794-806 MHz.<sup>5</sup> Finally, it expressed support for ArrayComm, Inc.'s request that general OOBE constraints be tightened above the  $43 + 10 \log (P)$  dB level set forth in the *First R&O*,<sup>6</sup> and requested that the Commission maintain an allowance for gradual reduction of OOBES in the bands immediately outside and adjacent to the frequency block as defined in the *First R&O*.<sup>7</sup>

In these reply comments, TRW reemphasizes the broad support for its positions found in the filed comments and/or oppositions to various petitions for reconsideration in this proceeding. In addition, TRW also replies to Motorola's opposition of TRW's

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<sup>3</sup> See *id.* at 3-4.

<sup>4</sup> See *id.* at 5.

<sup>5</sup> See *id.* at 6. As emphasized in TRW's Comments & Opposition, TRW is not making any proposal at this time regarding OOBE levels required to protect the GPS bands, but supports continued strict control of OOBES into the GPS bands. See *id.* at 3 n.7.

<sup>6</sup> See *id.* at 6.

<sup>7</sup> See *id.* at 6-9.

positions and encourages the Commission to ensure the availability of the 10 MHz channels to time division duplexing (“TDD”) systems.<sup>8</sup>

**I. Widespread Support Exists for TRW’s Positions Regarding Power Limits, OOB Limits to Protect Public Safety Systems, and General OOB Standards.**

In the recent round of comments on, and oppositions to, petitions for reconsideration in the 700 MHz Band Rules Proceeding, several parties expressed opinions similar to TRW’s position on power limits. TRW believes that the power limits set forth in the *First R&O* will inhibit deployment of broadband technology, and that imposing service-specific power limits is a more appropriate approach. Parties expressing support for these views included ArrayComm, Inc. (“ArrayComm”)<sup>9</sup> and U S West.<sup>10</sup> Except for Motorola, whose arguments are addressed below in Part II of this reply, no other parties objected to TRW’s position that service-specific power limits are the appropriate means for enabling commercial development of the 700 MHz bands and ensuring promotion of the public interest.

Several parties’ comments and/or oppositions paralleled TRW’s opposition to APCO’s call for stricter OOB limits to protect public safety entities. Like TRW, Bell

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<sup>8</sup> Comments of Motorola on Petitions for Reconsideration (filed Mar. 10, 2000) (“Motorola Comments”).

<sup>9</sup> See Comments on Petitions for Reconsideration of ArrayComm, Inc. at 3-4 (filed Mar. 10, 2000) (“ArrayComm Comments”) (joining TRW in protesting the 30 watt limitation in the upper band, and noting that section 27.53 inhibits the implementation of more efficient time division duplexing technology).

<sup>10</sup> See U S West Opposition & Comments at 9 (advocating modifying the transmit power limits instead of eliminating frequency pairing as a means to accommodate time division duplexing technologies and provide flexibility to commercial licensees).

Atlantic Mobile, Inc. raised concerns about APCO's failure to demonstrate that an additional attenuation is warranted to protect public safety entities.<sup>11</sup> Also, U S West questioned APCO's contentions regarding detrimental OOB effects on public safety licensees as speculative.<sup>12</sup>

TRW's advocacy of higher limits for general OOBs garnered substantial support from ArrayComm. It is noteworthy that in its discussion of this point, ArrayComm emphasized that the imposition of stringent limits for public safety services is an implicit indication that providing the same level of OOB protection to commercial users is within the realm of technical and economic feasibility.<sup>13</sup>

## **II. TRW Opposes Motorola's Claim That Deploying Fixed and Mobile Equipment in Both Sub-Bands Is Infeasible, and Disagrees With Retaining the General OOB Limits as Set Forth in the *First R&O*.**

TRW disputes Motorola's contention that deploying both frequency division duplexing ("FDD") and TDD technologies in a given sub-band will inevitably yield problematic interference. If service-specific power limits are employed as proposed by TRW, avoidance of interference through the specified OOB limits will be achieved. Further, TRW points out to the Commission that Motorola stands alone in its contention that FDD and TDD deployment in the same band is problematic from an interference management perspective. TRW submits to the Commission that service-specific power limits and appropriate OOB limits would indeed allow sharing of the bands by mobile and fixed users, while adequately protecting the public safety bands.

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<sup>11</sup> See Opposition of Bell Atlantic Mobile, Inc. to Petition for Reconsideration of APCO at 2 (filed Mar. 10, 2000).

<sup>12</sup> U S West Opposition & Comments at 2-3.

<sup>13</sup> See ArrayComm Comments at 6.

Motorola asserts that allowing service-specific – as opposed to band-specific – OOB limits will result in higher levels of interference into the public safety bands, since a given 15 MHz segment of the 30 MHz commercial spectrum will produce OOB from mobile as well as base stations.<sup>14</sup> TRW points out that there will be OOBs from mobile as well as base stations into the public safety bands, independent of whether the system is FDD or TDD. In other words, OOBs into the public safety bands will rise to levels up to those allowed by the specified OOB limits, regardless of whether base stations and mobile stations occupy the same band. *Ultimately, what is pertinent is the sum total of the OOB from all base stations and mobile stations in both bands, which is independent of whether the deployed systems utilize TDD or FDD.*

TRW also disagrees with Motorola's position that the general OOB limits set forth in the *First R&O* should not be modified. As demonstrated in the TRW Comments & Opposition, the general OOB constraints must be increased above the  $43 + 10 \log (P)$  dB level in order to prevent significant interference to broadband systems.<sup>15</sup> Motorola, on the other hand, does not make any technical showing, but provides only an unsubstantiated statement of support for the Commission's adopted limit, which itself has been shown to be too lax.<sup>16</sup> Based on TRW's demonstration of the impact of the  $43 + 10 \log (P)$  dB level, the Commission has an obligation to address this issue carefully and increase the general OOB threshold to prevent harmful interference into other bands.

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<sup>14</sup> See Motorola Comments at 10-11.

<sup>15</sup> See TRW Comments & Opposition at Appendix A.

<sup>16</sup> See *id.* at 6-8.

**III. The Commission Should Implement TRW's Recommendations to Ensure Rapid, Equitable Deployment of Fixed Wireless Local Loop Services**

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TDD systems are efficient users of the frequency spectrum in which they are deployed, making Wireless Local Loop ("WLL") service practical in even a single broadband channel, especially the 10 MHz channels, whether paired or unpaired. Since few, if any, metropolitan regions have more than one UHF TV station in the affected band, TDD provides an opportunity for early WLL service entry. Unlike FDD, which requires the availability of two channels for basic operations, TDD will allow service providers to selectively deploy WLL service quickly in the unused UHF TV frequencies in any given metropolitan area while existing stations that may occupy the paired 10MHz channel are being vacated. For these reasons, TRW's proposal that the Commission employ service specific power limits that do not discriminate between paired channels will insure that WLL deployment can benefit the public equally in all regions of the country, independent of the channel used by existing TV stations.

## CONCLUSION

For the foregoing reasons, the FCC should adopt service-specific power limits in both 700 MHz sub-bands to enable TDD deployment in both bands, and general OOBE constraints that parallel the level set for the public safety bands. Only in this manner will the Commission effectively accomplish its goal of reasonably balancing the needs of commercial providers and public safety entities alike. TRW opposes Motorola's proposals since they would cause inefficiencies in the bands at issue. Lastly, TRW notes the benefits of single channel TDD deployment in 10MHz channels as a means to ensure early WLL entry into markets with existing UHF TV stations.

Respectfully submitted,

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March 17, 2000

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## **CERTIFICATE OF SERVICE**

I, Tim Jordan, do hereby certify that copies of the foregoing "Reply of TRW Inc. to Oppositions and/or Comments" were delivered this 17<sup>th</sup> day of March, 2000, to the following in the manner indicated:

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